

CHAPTER 4: ENVIRONMENTAL CONSEQUENCES

This chapter addresses environmental consequences of the Preferred and No Build Alternatives. Where impacts to resources would occur, mitigation measures are described. Mitigation describes any efforts that are proposed to avoid, reduce, or compensate for impacts resulting from the implementation of the Preferred Alternative. Because the No Build Alternative would not cause any direct changes to the corridor, mitigation is discussed for the Preferred Alternative only.

4.1 LAND USE IMPACTS

This section describes the alternatives' compatibility with existing plans, policies, and guidelines that may affect future land use in the study area. The potential impacts described in this section are based on the status of corridor planning efforts at this time and on currently available information.

4.1.1 No Build Alternative

This alternative will not change the existing or planned land uses in the 3500 South study area. Therefore, the No Build Alternative will not impact regional land use and development. The No Build Alternative would provide limited support for new development or redevelopment of the 3500 South corridor. Traffic congestion, delays, and safety issues would continue to worsen and potentially limit real estate investment. Furthermore, the No Build Alternative would not support city plans and policies because it would not improve traffic congestion nor provide opportunities for urban design elements and an improved streetscape along 3500 South.

4.1.2 Preferred Alternative

This alternative is compatible with city plans and policies because it would improve traffic congestion and provide opportunities for urban design elements and an improved streetscape along 3500 South. In addition, redevelopment is likely to occur in accordance with current zoning and the city's General Plan.

The Preferred Alternative would require 115 feet of total right-of-way width to add a travel lane in each direction and allow for the inclusion of BRT along 3500 South. The number of impacted parcels, displacements, and required acreage is listed in **Table 4-1**. The Preferred Alternative would impact 74 parcels and displace two single-family homes and 16 commercial properties. Because this alternative provides a higher level of transit service, it could encourage more transit oriented and mixed use development and redevelopment-

particularly near the proposed intermodal center at 2700 West. This alternative would improve traffic flow throughout the corridor. That increased flow, especially to entertainment and cultural venues in the area, could help sustain existing land uses and encourage redevelopment.

Table 4-1 Right-of-way and Relocation Impacts

	Number of Parcels Impacted	Acres of New Right-of-Way Needed	Number of Commercial Properties Displaced	Number of Single-Family Properties Displaced
Preferred Alternative	74	1.75	16	2

Source: Carter & Burgess, February 2006.

Note: The right-of-way impacts are based on the conceptual engineering completed as of January 2006. This listing is preliminary and is subject to change as the design of the project proceeds.

4.1.3 Mitigation

Consideration of potential impacts on land use would continue throughout the study and design of the Preferred Alternative. The intent would be to minimize any negative impacts such as potential neighborhood disruption, displacement of existing residents and businesses, and safety issues. UDOT would continue to coordinate with West Valley City and local neighborhood and business groups during project development. Right-of-way acquisitions for the Preferred Alternative would comply with the requirements discussed in **Section 4.3.3**.

4.2 SOCIAL IMPACTS

This section describes the alternatives' potential impacts to communities and community facilities.

4.2.1 No Build Alternative

The No Build Alternative would not change access to community facilities within the study area. Nor would it impose barriers to social interaction or community functions. However, the No Build Alternative would not increase accessibility or mobility, which could ultimately reduce the quality of life for residents of the study area.

4.2.2 Preferred Alternative

The Preferred Alternative is consistent with local land use plans and would not disrupt or isolate residential neighborhoods in the study area. Instead, it would enhance mobility between neighborhoods in the 3500 South corridor. This alternative would lead to higher levels of transit service and increased accessibility to employment and activity centers, which could lessen the historic separation between communities caused by 3500 South. Access for transit dependent residents would be improved by implementation of the Preferred Alternative.

No community facilities would be impacted by the Preferred Alternative, with the exception of Granger Park. The Preferred Alternative would require a small amount of right-of-way (approximately 0.07 to 0.17 acres) of the 8.5 acre Granger Park. No buildings, structures, or parking would be displaced and the minimal impact to the right-of-way would not affect the use of the park.

4.2.3 Mitigation

Right-of-way acquisition of the approximate 0.07 to 0.17 acres of Granger Park would comply with the requirements discussed in **Section 4.3.3**.

UDOT would continue to coordinate with West Valley City and local neighborhood and business groups during project development. This coordination includes UDOT considering design measures (e.g. street crossings to access schools or parks) to enhance the safety of children.

4.3 ENVIRONMENTAL JUSTICE IMPACTS

The Preferred and No Build Alternatives' effects on right-of-way, relocations, land use, social, economics, air quality, noise and visual analyses were reviewed to assess any disproportionate impacts to minority and low-income populations.

4.3.1 No Build Alternative

The No Build Alternative would not disproportionately impact low-income and/or minority communities. Nor would it improve traffic congestion or increase transit service along 3500 South. The increased congestion and traffic caused by taking no action could degrade air quality and increase noise levels, but visual resources would not be affected. The No Build Alternative would maintain the status quo level of access to employment opportunities and activity centers for residents. The No Build Alternative would not result in any displacements; therefore, no disproportionate displacement impacts would occur.

4.3.2 Preferred Alternative

The conceptual design of the Preferred Alternative sought to avoid impacts to populations that could be considered disadvantaged communities (see **Section 3.3**). For example, the Compass Townhomes are part of the low-income housing tax credit program. Thirty five percent of the apartment units are set-aside for specific low-income tenants (Section 8 housing voucher holders). This complex would have been impacted if the roadway was widened to the north. This served as an important consideration in selecting the south of center alignment of the Preferred Alternative, which would avoid these impacts.

The Preferred Alternative would potentially displace 16 commercial structures and two single-family residences. The two residences are located south of 3500 South in census tract 1133.08, block group 3. US Census data indicate that the population in this tract is mostly White (58 percent). Hispanic persons comprised 26 percent of the population in this block group compared to 18.5 percent in West Valley City and 11.9 percent in Salt Lake County. Approximately 14% of the persons in the block group are at or below the federal poverty level, compared to 8.6% and 8.0% in West Valley City and Salt Lake County, respectively. The specific ethnic and income status of the two residences is not known, and collecting this information would create a privacy concern. Regardless, these impacts would not be considered disproportionate per the environmental justice guidance discussed in **Section 3.3**.

4.3.3 Mitigation

The Preferred Alternative is not expected to disproportionately impact low-income or minority populations. Therefore, no mitigation is required. However, because relocations could include minority and/or low-income persons, UDOT will continue to provide public outreach opportunities throughout the project to ensure that concerns of those residents and business owners are considered. Any persons displaced would be provided full relocation benefits, as discussed in **Section 4.4.3**.

4.4 RELOCATION IMPACTS

This section describes the alternatives' potential impacts to residential and commercial properties by specifying the number of relocations they will cause.

4.4.1 No Build Alternative

The No Build Alternative would not displace any properties.

4.4.2 Preferred Alternative

The Preferred Alternative would require relocations of two residential and 16 business properties (see **Table 4-1**). **Figure 2-18 in Chapter 2** shows these proposed relocations.

4.4.3 Mitigation

All relocations would occur under UDOT's Relocation Assistance Program, which is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended). These acts contain specific requirements that govern the manner in which a governmental entity acquires property for public use. Their combined purpose is to provide a uniform policy for fair and equitable treatment of persons or businesses displaced as a result of federal and federally assisted programs. Any household or business that would be relocated or displaced would be eligible for assistance under the requirements of the Federal Uniform Relocation Act. Available housing is to be within the financial means of the displaced persons, including low-income families. All relocation services and benefits are administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (42 U.S.C. 2000d, et seq.). Also, UDOT commits to provide last resort housing when sufficient comparable replacement housing may not be available.

According to housing data from the 2000 Census, there were approximately 1,205 vacant housing units (out of a total of 33,484 housing units) for rent or for sale in West Valley City. The vacancy rate for rental units is six (6) percent and 1.8 percent for homes. A combination of new housing starts and on-going vacancy rates, even at the modest levels reported by the 2000 Census, suggests that there would be sufficient housing units to relocate all those displaced within the study area.

Most of the businesses that would be displaced by the proposed project are small retail businesses with few employees. As of the year 2000, there were 3,279 businesses in West Valley City. 1,177 are home based businesses, leaving 2,102 businesses that are defined as commercial. More recent data were not available for West Valley City, but city officials provided Year 2006 information for the entire Salt Lake County. These data indicate that the county has approximately 2,620,000 square feet of vacant commercial space, which represents approximately 10% of total commercial space. Therefore, there is available commercial space within Salt Lake County for any businesses that opt to relocate within their present service area. The right-of-way acquisition process would also compensate property owners for the loss of parking.

4.5 ECONOMIC IMPACTS

This section describes the alternatives' potential impacts to economic indicators such as employment, sales tax revenue and median income within the study area.

4.5.1 No Build Alternative

This alternative would not require right-of-way or directly impact businesses along 3500 South. Therefore, it would not cause employment or sales impacts. However, increasing

traffic congestion, delays, and safety issues could potentially lead to limited investment or reinvestment in properties.

4.5.2 Preferred Alternative

This alternative would reduce traffic congestion and delay, and improve safety. These improvements could encourage development or redevelopment of commercial properties that front 3500 South, as called for in the city's General Plan. The Preferred Alternative, combined with supportive public policies, private sector plans, and favorable real estate market conditions, could attract transit supportive development to the study area. This could include employment opportunities, higher density residential development, and new services and amenities.

However, the proposed improvements would displace numerous existing businesses. **Table 4-1** shows the number of potential relocations associated with the Preferred Alternative. The displacements would include automotive-related businesses, restaurants, services, and retail businesses. Most of the businesses that would be displaced by this alternative would be small retail and commercial businesses with a few employees each.

Both temporary and long-term economic impacts would occur. Temporary (short-term) impacts are those associated with construction such as increased travel times and reduced accessibility. Long-term impacts would be associated with continued operation and maintenance activities and shortened travel times. Improved accessibility, traffic flow, visibility, and safety are all likely benefits that would also be considered long-term impacts.

4.5.3 Mitigation

UDOT would provide any displaced businesses relocation assistance under the requirements of the Federal Uniform Relocation Act. No other mitigation is required.

4.6 PEDESTRIAN AND BICYCLE IMPACTS

This section describes the alternatives' potential impacts to the bicycle and pedestrian facilities within the study area.

4.6.1 No Build Alternative

This alternative would not improve access for pedestrians and bicyclists in the study area or correct the deficient conditions for pedestrians and bicyclists described in **Section 1.2**. Traffic congestion and delay, and safety issues would continue to degrade and consequently hinder pedestrian and bicycle mobility along 3500 South.

4.6.2 Preferred Alternative

The Preferred Alternative would provide improved facilities for pedestrians and bicycles. ADA ramps at street intersections would be provided. Bicycles would be allowed on existing sidewalks and in roadway shoulders unless otherwise noted by posted signs.

4.6.3 Mitigation

No mitigation is proposed.

4.7 AIR IMPACTS

This section examines potential project effects on air quality. In addition to CO, PM, VOCs, and NO_x, this section examines impacts from ozone, sulfur dioxide, and lead. Air pollutant impacts are studied on a countywide regional level and a local level. The local level analysis involves examining each major intersection along the 3500 South corridor.

4.7.1 Regional Air Quality Conformity

Table 4-2 shows that the regionally significant portions of the Preferred Alternative are included in the WFRP LRP Update 2004-2030 (WFRP, 2003b) and the WFRP 2004-2008 TIP (WFRP, 2003c). The Federal Highway Administration (FHWA) and Federal Transit Authority (FTA) made a conformity finding of the 2004-2030 LRP and the 2004-2008 TIP on January 20, 2004. Therefore, the Preferred Alternative meets the regional conformity requirements and a new conformity determination is not required.

Table 4-2 Relevant Projects Included in the Conforming LRP and TIP

Project	Description	LRP	TIP
3500 South from Redwood Road to 4000 W*	Widening, add 2 lanes.	X	
3500 South from 4000 W to 5600 W (Mountain View)*	Widening, add 2 lanes.	X	
3500 South from 5600 W (Mountain View) to 8400 W**	Widening, add 2 lanes.	X	
3500 South from 5600 W (Mountain View) to 2700 W	Widen road to five lanes		X

* Scheduled to occur 2004 – 2012

** Scheduled to occur 2013 – 2022

TIP applies to projects scheduled to occur 2004 – 2008

4.7.2 Regional Analyses

Because the project is included in a conforming transportation plan and the area is an attainment area for CO, further analysis at a regional level is not necessary. In addition, the regional CO impacts from an individual transportation project are likely to be small and uncertain.

The study area is located in a PM₁₀ non-attainment area. The EPA initially approved the PM₁₀ SIP in November 1994. **Table 4-2** shows that the regionally significant Preferred Alternative is included in the Wasatch Front Urban Area Long Range Transportation Plan Update 2004-2030 (Long Range Plan) (WFRP, 2003b) or the WFRP 2004-2008 TIP (WFRP, 2003c). FHWA made a conformity finding of the 2004-2003 LRP and the 2004-2008 TIP on January 20, 2004. Therefore, the proposed project meets the regional conformity requirements

The 3500 South corridor is located in a maintenance area for ozone. The EPA approved the ozone maintenance plan on February 2, 1997. As previously stated, the projects shown in **Table 4-2** are included in the Wasatch Front Urban Area Long Range Transportation Plan Update 2004-2030 (LRP) (WFRP, 2003b) or in the WFRP 2004-2008 TIP (WFRP, 2003c). FHWA and FTA made a conformity finding of the 2004-2030 LRP and the 2004-2008 TIP on January 20, 2004.

4.7.3 Local Analyses

Table 4-3 shows monitored pollutant concentrations in parts per million (ppm) for the Magna and West Valley monitors (those closest to the study area for the pertinent pollutants). Please note that not every pollutant is monitored at every monitoring site.

Table 4-3 Summary of Monitored Pollutant Concentrations for Salt Lake County*

Pollutant	Averaging Time	2003 Data	Standard	Station
CO	8-hour	5.2 ppm**	9 ppm	West Valley
	1-hour	7.1 ppm**	35 ppm	West Valley
Ozone	8-hour	0.088 ppm**	0.08 ppm	West Valley
PM ₁₀	Annual	23 µg/m ³	50 µg/m ³	Magna
	24-hour	70 µg/m ³ **	150 µg/m ³	Magna
PM _{2.5}	Annual	10.8 µg/m ³	15 µg/m ³	West Valley
	24-hour	54.6 µg/m ³	65 µg/m ³	West Valley

Source: (UDAQ, 2006a; 2006b, 2006c, 2006d).
 *Values reported for monitoring station closest to project site. Magna: 2935 South 8560 West; West Valley: 3275 West 5100 South
 **Reported Value is Highest Recorded for Year; Annual Values are Averaged for Year.

Table 4-4 displays the emissions from the Preferred Alternative and the No Build Alternative. The results show the impacts are very similar, with emissions for the Preferred Alternative being only slightly higher than for the No Build Alternative.

Table 4-4: 2030 Annual Emission Impacts by Alternative

	Emission Factor (g/mile)	No Build	Build
VMT/day by Alternative	n/a	304,540	382,564
VOC Composite	0.255	0.09	0.11
CO Composite	11.249	3.78	4.74
NOx Composite	0.243	0.08	0.10
PM (non-exhaust)	0.05	0.02	0.02
PM (fugitive dust)	0.84	0.28	0.35

Note: tons/day = Emission Factor (g/mile)*VMT/day/ ((453.59 g/lb)*(2000 lb/ton))

4.7.4 Localized Carbon Monoxide Analysis

In addition to the regional analysis, the Clean Air Act Amendments requires the preparation of a hot spot analysis of emissions for projects located within CO non-attainment areas. Although the project is not located in a CO non-attainment area, an air quality assessment, including a CO hot spot analysis, was performed to determine project level environmental impacts.

The UDOT Air Quality Hot Spot Manual (UDOT 2003) provides an approach to determining acceptable CO concentrations at critical intersections and mainlines using "traffic volume screening". Detailed model runs to determine air pollution levels must only be run if the intersection or roadway being studied has traffic volumes at or above specified thresholds for similar intersections and roadways. When traffic volumes are lower than these thresholds, the modeling results in the manual may be used because the lower volumes are not expected to create hot spot concentrations near the NAAQS. In Salt Lake County, the threshold volumes are 25,000 vehicles per day for one lane of traffic and 45,000 vehicles per day for two or three lanes of traffic. Therefore, if a one-lane intersection in Salt Lake County (meeting the criteria outlined in the Hot Spot Manual) has daily traffic volumes in each direction less than 25,000 vehicles or a two- or three-lane intersection has volumes less than 45,000 vehicles in each direction, the intersection is not likely to create CO concentrations greater than the NAAQS standard.

The traffic volumes for most major intersections in the study area do not exceed the intersection threshold. Predicted peak hour daily traffic volumes for critical intersections for the Preferred Alternative, and the No Build Alternative, are shown in the 3500 South Air Quality Report (Appendix I, under separate cover).

4.7.5 Modeling Assumptions

In accordance with the Hot Spot Manual, receptors were placed on both sides of the street 75 feet from every intersection corner at a height of six feet above ground level for the CAL3QHC model. To estimate the mainline impacts near the southbound I-215 ramps, receptors were placed east and west of the I-215 southbound ramps at equal distance between traffic signals on both sides of 3500 South as part of the I-215 southbound ramp intersection CAL3QHC Build model run.

Meteorological data such as wind speed (1 m/s), stability class (E), and increment angle (10°) were based on recommendations in the Hot Spot Manual. Emission factors were taken from Table 1 of the Hot Spot Manual for principal arterials in Salt Lake County. The emission factors were developed by the FHWA, WFR, and MAG using MOBILE6.2. Copies of the input and output data for the CAL3QHC modeling are included in the 3500 South Air Quality Report (Appendix G, under separate cover). The future background CO concentrations of 12 ppm (1-hour) and 6 ppm (8-hour) were taken from the Hot Spot Manual for Salt Lake County. Eight-hour CO concentrations were calculated from the modeled 1-hour CAL3QHC concentrations using a meteorological persistency factor of 0.7, per the recommendations of the Hot Spot Manual.

4.7.6 Localized Carbon Monoxide Analysis Results

Hot spot modeling was conducted for 3500 South at I-215 Southbound ramps and Constitution Boulevard. Table 4-5 shows worst-case CO impacts for these intersections for the Preferred and No Build alternatives. Based on this analysis, no intersections would exceed the one-hour or the eight-hour CO standard in the design year.

Table 4-5: Year 2030 CO Hot Spot Results

	3500 South & I-215 SB Ramps	3500 South & Constitution Ave*	3500 South Mainline East & West of I-215 SB ramps*
1-hour (ppm)			
NAAQS Standard Level		35.0	
Background Level		12	
No Build	14.4	14.8	13.4
Preferred	14.3	14.4	13.4
8-hour (ppm)			
NAAQS Standard Level		9.0	
Background Level		6.0	
No Build	7.7	8.0	7.7
Preferred	7.6	7.7	7.7

n/a not applicable
 *Concentrations include background concentrations.

4.7.7 Localized PM₁₀ Analysis

Since the study area is located within a PM₁₀ non-attainment area, this analysis included a localized hot spot analysis of PM₁₀ emissions. As shown in Table 4-4, the estimated PM₁₀ emissions associated with the Preferred Alternative are slightly higher than the emission estimates for the No Build Alternative. The analysis shows the Preferred Alternative would not cause, or contribute to, any new localized PM₁₀ violations. Nor would it increase the frequency or severity of any existing violations.

Based on data contained on the Utah DAQ Air Monitoring Center website, the Magna PM₁₀ monitor last exceeded the 24-hour NAAQS on February 25, 2002 with a recorded value of 253 µg/m³. The annual PM₁₀ measurements dating back to 1986 show no exceedances at the Magna monitor. The Utah DAQ is working on a PM₁₀ SIP to possibly request redesignation of Salt Lake County to a maintenance area for PM₁₀ from EPA. Two major point sources of PM₁₀ emissions, Alliant Techsystems and Kennecott Utah Copper Corporation, are located near the study area and the Magna PM₁₀ Monitor. Alliant Techsystems (an aerospace and defense technology company) conducts occasional open burning at their Magna facility and Kennecott Utah Copper Corporation operates an open pit copper mine south of the study area. These operations could explain the high short-term measurements that have occurred in the past at the Magna PM₁₀ monitor.

The Utah Air Quality Rules require a dust control plan from all sources whose activities or equipment have the potential to produce fugitive dust or airborne dust along the Wasatch Front.

4.7.8 Localized Ozone Analysis

As shown in Table 4-4 the Preferred Alternative would slightly increase VOC and NO_x (ozone precursor) emissions. However, ozone levels are not expected to exceed emission levels established in the SIP.

4.7.9 Nitrogen Dioxide, Sulfur Dioxide, and Lead Analysis

Salt Lake County is a non-attainment area for Sulfur Dioxide (SO₂). EPA approved the SO₂ SIP in 1994. Salt Lake County is an attainment area for both nitrogen dioxide and lead. Because these pollutants are also regional pollutants, it is difficult to analyze them on a project level. In addition, emissions of NO₂, SO₂, and lead from motor vehicles are typically low. Consequently, any impacts from these pollutants associated with the Preferred Alternative would most likely be negligible.

4.7.10 Mitigation

Levels of pollution expected with the implementation of the Preferred Alternative are shown to be well within the acceptable NAAQS range. Therefore, no mitigation is required for air impacts.

4.8 NOISE IMPACTS

This section discusses noise criteria and ambient noise levels in the study corridor. This section provides methods and results of the noise impact evaluation. For greater detail, please refer to the 3500 South Noise Technical Report (Appendix J, under separate cover).

4.8.1 Methods

The noise evaluation involved characterization of existing noise levels and modeling future 2030 noise levels to determine possible traffic noise impacts associated with the Preferred Alternative. It also considered potential noise abatement strategies for mitigating roadway noise impacts (see Section 4.8.3). The evaluation was completed according to state and federal noise policies and regulations. Impacts to noise-sensitive receivers along the study corridor were calculated using the FHWA TNM Version 2.5 computer program.

Table 4-6 shows the audible differences perceived by most people associated with changes in decibel levels (UDOT, 2004).

Table 4-6. Decibel Increase vs. Audible Difference

Decibel Increase	Audible Difference
+1 dBA	No perceptible change
+3 dBA	Barely perceptible change
+5 dBA	Readily perceptible change
+10 dBA	Perceived as twice as loud

Source: UDOT, 2004

Future 2030 noise model runs for the No Build Alternative and the Preferred Alternative were based on the existing model set up. The existing model was modified based on the proposed number of lanes and other roadway improvements associated with the Preferred Alternative. Level of Service C threshold traffic volumes were used to represent the worst hourly traffic noise conditions for modeling purposes. The No Build Alternative model run used the existing roadway configuration and Level of Service C threshold traffic data.

To assess noise associated with the Preferred Alternative, noise receivers were placed primarily near buildings or outside residential areas such as backyards and patios where residents may be exposed to traffic noise. Noise receivers are specific locations modeled in

the TNM software often used to represent similar geographically located sites known as receptor sites. Retail sites typically desire highly visible locations and require direct access to the 3500 South corridor; therefore retail receivers were not modeled for noise levels.

4.8.2 Results

Table 4-7 shows the number of impacted noise receivers and receptor sites for the No Build and the Preferred Alternatives based on readings obtained from the receivers in the model. Figure 4-6 and Figure 4-7 (found at the end of this chapter) show the 65 dBA and 70 dBA noise contours in relation to these sites.

4.8.2.1 No Build Alternative

Under the No Build Alternative (Figure 4-6 – found at the end of this chapter), out of the 46 receivers representing 46 potential receptor sites evaluated, 13 receivers representing 18 receptor sites would experience noise levels equal to or exceeding 65 dBA (Category B). Thirteen of these receivers, representing 13 receptor sites, would experience noise levels equal to or exceeding 70 dBA (Category C).

4.8.2.2 Preferred Alternative

Under the Preferred Alternative (Figure 4-7 – found at the end of this chapter), out of the 46 receivers representing 46 potential receptor sites evaluated, 18 receivers representing 18 receptor sites would experience noise levels equal to or exceeding 65 dBA (Category B). Thirteen of these receivers, representing 13 receptor sites, would experience noise levels equal to or exceeding 70 dBA (Category C).

Table 4-7. Number of Impacted Receivers

	No Build/ Existing	Preferred Alternative
Total No. receivers	46	46
Total No. receptor Sites	46	46
No. receivers >NAC	13	18
No. receptor Sites >NAC	13	13
No. receivers <NAC	33	33
No. receptor Sites <NAC	33	33
No. of receivers that could achieve 5 dBA or greater mitigation	N/A	9
No. of receptor sites that could achieve 5 dBA or greater mitigation	N/A	9

4.8.3 Mitigation

The UDOT Noise Abatement Policy (UDOT, 2004) states that noise abatement will only be considered if the proposed noise barrier would achieve a minimum 5 dBA noise reduction for a majority of front-row receivers under future conditions, and the cost would not exceed \$25,000 per benefited receiver. Safety and maintenance issues must be considered for a feasible design of a noise barrier. In addition, noise abatement will only be considered if a certain percentage of impacted residents vote, through balloting, in favor of the abatement. Seventy-five percent of the impacted front row receivers and 67 percent overall (including front row receivers) of the impacted residents who would benefit from a minimum of a 5 dBA reduction, would have to vote in favor of the abatement measures. Balloting of the affected residents was conducted prior to the April 2006 final 3500 South SES approval. April 17, 2006 was the deadline for receiving ballots. The results of the UDOT Noise Abatement Policy produced four property owner ballots. Of these four ballots two property owners were in favor of noise abatement. This information can be found in Appendix F. Table 4-9 and Figures 4-6 and 4-7 (found at the end of this chapter) show the potential noise barrier placement sites along the 3500 South corridor. You can also view the potential noise barrier placements in Figures 2-20 and 2-21 in Chapter 2.

In order for barriers to effectively mitigate noise, they must be continuous and not have breaks or stops. Therefore, impacted receivers that currently have direct access onto 3500 South cannot be mitigated with noise barriers, since construction of a continuous barrier would necessitate removal of these access points. Some of the receivers predicted to experience a noise impact that have direct access via driveways or adjacent cross-streets include: Zions Bank, the Aspen Village Apartment Office and apartments, Kiddie Kollege, and the Professional Plaza. These locations, and others like them, were not considered feasible or reasonable and were not analyzed for noise barriers. A strip mall located near the intersection of 3500 South/Market Street on the northeast corner was also modeled for noise impacts. According to the UDOT Noise Abatement Criteria discussed in Section 3.7.1, Category B includes parks, recreation areas, places of worship, hotels, motels, hospitals, schools, and libraries. Although this strip mall includes a church, it has direct access to 3500 South via a driveway to the corridor and therefore a noise barrier is not appropriate at this location due to ineffectiveness of walls with breaks.

The TNM model estimated the effectiveness of noise barriers to mitigate impacts by comparing noise levels with and without the barriers. Table 4-8 shows the results for each of the receiver locations used to assess the effectiveness of the barriers. (Residences that would require relocation were not included as potential receptors.)

Table 4-8. Receiver Noise Level Model Results

Barrier #	Receiver #	Preferred Alternative		
		No Wall	With Wall	Leq Reduction With Wall
18	460	66.3	66.0	0.3
26	306	68.5	60.3	8.2
27	308	68.3	59.4	8.9
28	317	67.1	60.6	6.5
29	320	66.6	60.9	5.7
29	321	69.9	60.3	9.6
29	323	70.5	60.3	10.2
29	326	66.0	59.5	6.5
30	332	66.8	61.7	5.1
31	394	-	-	-

The edge of Granger Park that abuts 3500 South is expected to have noise impacts. This section represents approximately 15% of the area of the park. Assuming that an eight foot wall was installed for mitigation purposes, the cost would be approximately \$60,000. This was considered unreasonable for mitigation.

Seven potential noise barriers were analyzed at residential locations to determine the physical feasibility and the economical practicality of the barriers. Six of the barriers meet the UDOT criteria of both a 5 dBA or more noise reduction and \$25,000 per benefited residence. The proposed noise barrier locations for the Preferred Alternative are summarized in Table 4-9.

Table 4-9. Potential Noise Barriers for Build Alternatives

Barrier Location	Barrier No.	No. of Benefitted Receptor Sites	Average dBA Reduction / Receptor Site	Barrier Height (ft)	Barrier Length (ft)	Barrier Area (ft ²)	Barrier Cost ^a (\$)	Cost Per Benefitted Site ^b (\$)	Criteria Met ^c Y or N
House on NE corner of 3500 S. & Constitution Blvd.	18	1	0.3	10	220	880	\$10,560	\$10,560	N
2 nd House South of 3500 S. on 3340 W. (west side)	26	1	8.0	8	160	1280	\$15,360	\$15,360	Y
2 nd House South of 3500 S. on 3340 W. (east side)	27	1	8.7	8	180	1440	\$17,280	\$17,280	Y
1 st House North of 3500 S. on Brock St. (east side)	28	1	6.7	8	150	1200	\$14,400	\$14,400	Y
Apartments on Northwest Corner of I-215/3500 S.	29	4*	8.0	12	670	8040	\$96,480	\$24,120	Y
House across from Café Silvestre on 2200 W.	30	1	5.1	8	180	1440	\$17,280	\$17,280	Y

a Assumes cost of \$12/ft² based on average UDOT bid prices for 2001 - 2004.
b Costs may change due to final design considerations
c If no, does not meet noise reduction requirements of greater than or equal to 5 dBA and/or exceeds cost per benefitted residence of \$25,000.
* Represents Apartment Buildings

4.9 WATER QUALITY AND WATER RESOURCE IMPACTS

This section describes the potential water quality impacts on surface water and groundwater.

4.9.1 Surface Water

The surface water runoff on 3500 South between Bangerter Highway and 1950 West discharges into the Riter Canal and Decker Lake. A small fraction of the runoff on 3500 South, between 1950 West and Redwood Road (approximately 15% of the total length of project), discharges into the Jordan River.

The permanent change in surface conditions due to the proposed road improvements could potentially impact surface water. Potential impacts to surface water during construction include increases in surface water flow and pollutant concentrations to receiving waters. Potential long-term impacts include increases of surface runoff due to additional impervious surface areas. In addition, the increased road surface would require additional salt application for roadway deicing activities during winter storm events which would enter runoff.

4.9.1.1 Methods

Parameters of concern in surface water runoff from roadways include heavy metals (copper, lead, and zinc), total suspended solids (TSS), total dissolved solids (TDS), and biochemical oxygen demand (BOD). For purposes of this analysis, it is assumed that the concentrations of the pollutant of concern in the surface water runoff are similar to the mean concentrations observed during storm events for Salt Lake County (Stantec, Sept 2000). These pollutant concentrations are shown in **Table 4-10**. TDS concentrations in storm runoff vary greatly based on land use and winter deicing activities.

Table 4-10: Existing (mean) Pollutant Concentration in Surface Water Runoff

Constituent	EMC (mg/L)
Total Copper	0.039
Total Lead	0.031
Total Zinc	0.181
TSS	116
TDS (April, May, June, Sept, Oct)	800
BOD-5	13.2

Source: Stormwater Quality Data Technical Report, Salt Lake County, UT Sept 2000. EMC = Event mean concentration; TSS = Total suspended solids; TDS = Total dissolved solids; BOD-5 = 5-day biochemical oxygen demand.

To assess impacts to receiving waters, the increases in stormwater runoff from a ten-year storm event were calculated. The rainfall is usually highest in the first 15 minutes of a storm, and this period would give the highest flow rate of surface runoff. The precipitation from a ten-year 15-minute storm ranges from 0.48 to 0.52 inches within the study area (TRC, 1999).

The estimated increases in water quantity were used to assess effects to water quality in nearby water bodies. These impacts were evaluated by estimating the increase in pollutant concentration due to a ten-year 15-minute storm. These stormwater quantity and pollutant increases were derived assuming no mitigation through use of Best Management Practices (BMPs), which are required and discussed in **Section 4.9.3**.

4.9.2 RESULTS

4.9.2.1 No Build

The No Build Alternative would not affect surface water quality.

4.9.2.2 Preferred Alternative

The runoff increases due to the increase of impermeable road surface for the Preferred Alternative are summarized in **Table 4-11**. Calculation details are presented in the Water Quality Calculations (**Appendix B**). The values shown represent the undetained (unmitigated) flow rates, and therefore, the worst-case conditions.

Table 4-11: Unmitigated Runoff Increase

Receiving Water	Flow Increase (cfs)
Decker Lake	14.31
Jordan River	2.37
Riter Canal	1.17

cfs = cubic feet per second

The runoff increases in **Table 4-11** were used to estimate increases into Decker Lake, Riter Canal, and Jordan River. Decker Lake drains 3500 South between 3600 West and 1950 West, while runoff between 1950 West and Redwood discharges into the Jordan River. Riter Canal drains 3500 South between Bangerter Highway and 3600 West. Since the North Jordan and Ridgeland canals do not directly receive runoff from the study corridor, they were not included in this assessment.

Water quality in Decker Lake is not monitored routinely. Lead levels were available for 1999 and copper and zinc levels were available for 1990. The data indicated that copper, lead, and zinc levels in Decker Lake are all below the analytical detection limit (ND). In 1999, water in Decker Lake also had an average of 65 mg/L of TSS, 947 mg/L of TDS and 3.9 mg/L of BOD.

The Department of Water Quality (DWQ) conducts in-stream monitoring at several locations along the Jordan River. The 3300 South monitoring site is the one closest to the project study area. Based on monitoring results collected between 2000 and 2004, the copper levels in the Jordan River are below the ND, the lead levels ranged from ND to 77 ug/L with an average detected concentration of 41 ug/L, and the zinc levels ranged from ND to 66 ug/L with an average detected concentration of 64 ug/L. Levels of TDS were not monitored at the 3300 South site after 1991. However, data collected in 2000 and 2004 at the 2100 South

monitoring site (downstream from the 3300 South site) show TDS levels ranged from 408 mg/L to 1158 mg/L, with an average of 860 mg/L.

For the Riter Canal, metal concentrations were calculated using winter low-flow values, the maximum quantity of run-off that would be added to the Riter Canal from a 10-year storm event due to the increase in surface area, and assuming the existing pollutant concentrations are similar to those in the Jordan River.

Table 4-12 shows the estimated post-construction concentrations of copper, lead, and zinc without mitigation. See **Appendix B**, Water Quality Calculations, for details.

Table 4-12: Estimated Metal Concentrations (Post Construction)

Metals	Estimated Concentration (mg/L)			Riter Canals
	Utah H ₂ O Standards	Decker Lake	Jordan River	
Copper	0.013	0.000013	0.00048	0.00103
Lead	0.065	0.000010	0.04043	0.04030
Zinc	0.12	0.000058	0.04748	0.04937

Decker Lake, Jordan River and Riter Canal are protected by the State for agricultural use, which includes irrigation of crops and stock watering. The in-stream Utah water quality standard for TDS is 1200 mg/L for crop irrigation and 2000 mg/L for stock watering. During the summer, the typical TDS concentrations in surface water runoff (800 mg/L) are below the Utah water quality standards (1200 mg/L) and are also below the average in-stream TDS concentrations observed in the Jordan River (860 mg/L) and in Decker Lake (947 mg/L). Therefore, summer storm events would actually help to lower TDS concentrations in the Jordan River and Decker Lake.

In the colder months, deicing salts applied during winter storm conditions would be expected to increase TDS loadings into the study area receiving waters. These potentially elevated levels of TDS would occur outside the irrigation season. UDOT specifications call for deicing salts to be applied at a lane rate of 150 pounds per mile (per UDOT Region 2 Maintenance Manager). For a standard lane width of 12 feet, the salt application rate is approximately 150 pounds per 63,360 square feet area. The estimated increase in TDS concentrations due to deicing would be 892 mg/L, and the estimated increase was calculated assuming a worst-case scenario in which all the salt applied reaches the receiving water as TDS during a ten-year 15-minute storm event. Adding 892 mg/L to the EMC of TDS in runoff without deicing salts (800mg/L) results in a concentration of 1692 mg/L TDS.

During the winter months, the agricultural use would be stock watering and the water quality standard for TDS would increase from 1200 to 2000 mg/L. The TDS concentration in the winter runoff is well below the Utah water quality standard of 2000 mg/L. While the TDS concentration in winter runoff is higher than the average TDS concentration in the Jordan River and in Decker Lake, it is below the Utah water quality standard and therefore will not impact the beneficial uses of the receiving waters.

The mean concentration of BOD-5 in stormwater runoff is 13.2 mg/L, and is well below the State standard of 25 mg/L (R317-1-3.2B). The TSS concentrations would be controlled through the use of storm water detention basins (see **Section 4.9.3**).

In summary, the Preferred Alternative is not expected to result in water quality impacts that would cause receiving water bodies to exceed Utah's water quality standards, even without mitigation. However, the Preferred Alternative would have long-term impacts to surface water including increased discharge and pollution loading to Decker Lake, Jordan River, and Riter Canal.

4.9.3 Mitigation

During the design phase, a Stormwater Pollution Prevention Plan (SWPPP) would be prepared that specifies BMPs that would be used to minimize impacts to surface water. These practices will likely include construction of stormwater management structures located within the storm drain system or ponds designed to reduce peak stormwater flows and allow for filtering or settling on pollutants prior to discharge into receiving waters. The settling time would allow the TSS concentrations in the runoff to achieve the Utah standard of 25 mg/L (R317-1-3.2A).

Capacity of the drainage system and detention basins for the study corridor will be assessed during the design phase and improved as necessary. Municipalities would be provided with map updates of the storm sewer system. Also, details of the stormwater plan would be coordinated with West Valley City's municipal stormwater program during the construction process.

4.10 GROUNDWATER IMPACTS

4.10.1 No Build Alternative

The No Build Alternative would cause no new impacts to groundwater.

4.10.2 Preferred Alternative

There are no anticipated impacts to the groundwater aquifers in the study area with the Preferred Alternative. Due to increased amounts of surface area that results in more surface water being diverted to the storm drainage systems, groundwater recharge would decrease once construction is complete. However, because the project area is not considered an aquifer recharge area, this decrease in groundwater recharge is not expected to adversely affect groundwater resources. There are five underground water wells that could potentially be affected by the Preferred Alternative. The identification number and location of these wells are listed in **Appendix B**.

4.10.3 Mitigation

If groundwater is encountered during construction in areas of known soil contamination, DWQ would be contacted and efforts would be taken to prevent the mixing of contaminated soil and groundwater. Impacts to water wells will not be determined until the design stage determines exactly where construction will occur. However, if impacts occur they will be avoided and minimized to the extent possible.

4.11 WETLANDS IMPACTS

There are no jurisdictional wetlands identified in the 3500 South study area, and the Preferred and No Build alternatives would not affect these resources.

4.12 THREATENED & ENDANGERED FISH & WILDLIFE SPECIES IMPACTS

The USFWS identified four federally-listed fish and wildlife species as potentially occurring in Salt Lake County where the study area is located:

- June sucker (*Chasmistes liorus*)
- Bald eagle (*Haliaeetus leucocephalus*)
- Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)
- Canada lynx (*Lynx canadensis*).

The probability of any of the listed species occurring in the corridor is low as very little suitable habitat is available and there is a high degree of urbanization and disturbance present. Therefore, neither the No Build Alternative nor the Preferred Alternative is anticipated to impact these species. On October 23, 2002, the USFWS issued a letter for the DEIS and then confirmed on December 12, 2005 that they do not anticipate any impacts to fish, wildlife nor their habitats (see **Appendix A**).

4.12.1 Other Species of Concern

Six species could occur within the study area (based on general location and habitat) that are listed by the UDWR as sensitive, including:

- Bonneville cutthroat trout (*Oncorhynchus clarkii utah*)
- Columbia spotted frog (*Rana luteiventris*)
- Ferruginous hawk (*Buteo regalis*)
- American white pelican (*Pelecanus erythrorhynchos*)
- Long-billed curlew (*Numenius americanus*)
- Short-eared owl (*Asio flammeus*)

The probability of these species occurring in the study area is very low due to the lack of suitable habitats and the extensive development and disturbance. Therefore, neither the No Build Alternative nor the Preferred Alternative is anticipated to impact these species.

4.12.2 Mitigation

No mitigation required.

4.13 VEGETATION AND WILDLIFE

This section describes the alternatives' potential impacts on vegetation and wildlife present in the study area.

4.13.1 No Build Alternative

There would be no impacts to vegetation or wildlife resulting from the No Build Alternative.

4.13.2 Preferred Alternative

Section 3.11.1 discusses attributes of the disturbed vegetative community that would be affected. Impacts to the vegetative community will not be adverse since these areas have already been disturbed.

The Preferred Alternative may impact wildlife through:

4.13.2.1 Mortality

A minor increase in wildlife mortality is expected as a result of project construction. Most of this mortality would likely be associated with those species, such as small mammals, that are ground-dwelling and generally less mobile. This impact is not directly quantifiable.

4.13.2.2 Habitat Loss

The Preferred Alternatives require the removal of some vegetated areas which would consequently result in a minor loss of habitat for birds, mammals, reptiles, and amphibians.

4.13.2.3 Displacement

Wildlife would be displaced during construction due to increased noise and visual disturbance. During construction, ground-burrowing species are likely to avoid the surface, while mobile species are likely to avoid the area.

4.13.3 Mitigation

The following mitigation measures would be employed to minimize impacts to vegetation under the Preferred Alternative.

- All equipment used for construction must be free of noxious weed seed and reproductive plant parts. Requiring the contractor to wash all equipment prior to mobilization onto the construction site and when moving equipment from areas with existing populations of noxious weeds to areas relatively free of these species would accomplish this.
- All fueling and maintenance of equipment would be done within the area of permanent disturbance or done off-site to avoid unnecessary impacts to vegetation.
- UDOT Standard BMPs would be implemented to control noxious weeds.
- BMPs would be used during all phases of construction to reduce impacts from sedimentation and erosion and may include the use of berms, brush barriers, check dams, erosion control blankets, filter strips, sandbag barriers, sediment basins, sheet mulching, silt fences, straw-bale barriers, surface roughening and/or diversion channels.

4.14 CULTURAL RESOURCES IMPACTS

Per the requirements discussed in **Section 3.12.1**, cultural resource impacts are described in terms of effect to the resource. An "adverse effect" results when the proposed construction project "will damage or diminish the historic integrity of the structure, i.e., work which does not meet the 'Secretary of the Interior's Standards for Rehabilitation,' including the application of siding, substantial additions, inappropriate window or door replacement, or demolition" (USHPO Section 404 Review for Historic Structures).

4.14.1 No Build Alternative

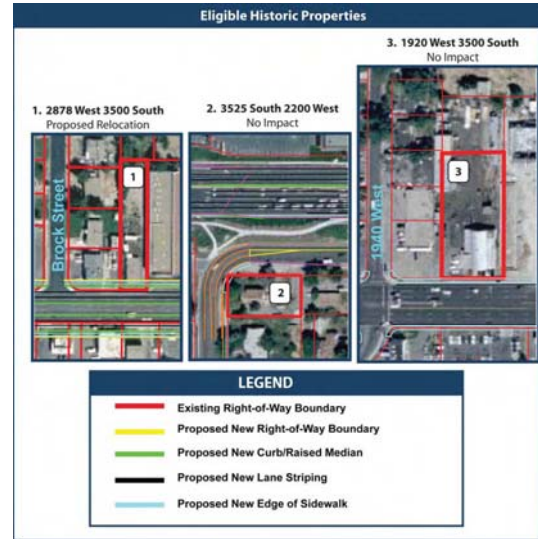
The No Build Alternative will cause no impact to historic or cultural resources in the study area.

4.14.2 Preferred Alternative

Figure 4-1 shows the three historic properties discussed in **Section 3.12** in relation to the Preferred Alternative. The conceptual design for the alternative avoids impacts to historic properties to the greatest extent possible. However, the alternative would impact one historic property, site E-84 located at 2878 West 3500 South. The entire parcel would likely be acquired and the owner would be provided relocation assistance. The alternative would not result in adverse effects to the remaining two historic properties.

Because Historic Property E-84(2878 West 3500 South) will be adversely impacted, the proposed project will result in a determination of "adverse effect." On March 8, 2006, UDOT requested concurrence from the USHPO on a determination of project effect. The USHPO responded with a letter of concurrence on March 18, 2006 (see **Appendix A**).

Figure 4-1: Historic Properties



4.14.3 Mitigation

Per USHPO Section 404 Review for Historic Structures, in order to mitigate the impacts of the proposed project on the Historic Property, the building shall be documented based on USHPO's Standard Operating Procedures for Intensive Level Survey (February 2005). These Standards include three separate tasks: A) researching the property; B) documenting the building; and C) completing the Historic Site Form.

- Researching the historic property requires investigation of the USHPO Historic Buildings database and files. In addition, the following sources should be consulted: 1) tax file (County Assessor's Office), 2) title abstracts (County Recorder's Office), 3) Sanborn Maps (The Utah History Research Center [UHRC]), 4) building permits, 5) newspapers (UHRC and university libraries), 6) architect's file (USHPO), 7) biographical information (city directories, State gazetteers, biographical index, and "Mormons and their Neighbors").
- Documenting the building requires: 1) photographs, 2) USGS maps, 3) measured drawings, and 4) sketch map of site.
- Completion of the Historic Site Form (Utah State Historic Society Office of Preservation) necessitates the completion of five sections: 1) identification, 2) status/use, 3) documentation, 4) architectural description, and 5) history.

4.15 HAZARDOUS WASTE SITE IMPACTS

This section describes the alternatives' potential impact to known hazardous materials in the study area. The impact assessment involved comparing locations of sites identified in **Section 3.13** to the identified right-of-way and relocation impacts for the Preferred Alternative. Impacts to these sites have the greatest potential of encountering hazardous waste and/or hazardous materials.

4.15.1 Assumptions

An impact to a closed UST or LUST site was considered to have the least potential of encountering hazardous waste and/or hazardous materials, as these sites were closed in accordance with Utah State Regulations and, therefore, no longer pose a recognized environmental condition at this time. However, there could be contaminated soils at these sites that, if disturbed, would need to be disposed of properly. An impact to an open UST site was considered to have a slight potential of encountering hazardous waste and/or hazardous materials since the condition of the tanks and existence of contamination is unknown. An impact to an open LUST site was considered to have a high potential of encountering hazardous waste and/or hazardous materials, as these sites continue to pose a recognized environmental condition due to the contamination in the soil and groundwater commonly associated with these sites. An impact to a known RCRA generator site was considered moderate only when the impact would require relocation of the site. For informational purposes, impacts to potential RCRA generator sites are summarized; however, they were not considered in determining the overall impact posed by the Preferred Alternative, as their status is not known.

It should be noted that the actual amount of disturbance to a site would not be known until construction occurs.

4.15.2 No Build Alternative

Under the No Build Alternative, there would be no impacts to any potential hazardous waste sites.

4.15.3 Preferred Alternative

The Preferred Alternative requires some small property acquisitions, which reduces the front strip of most corridor properties and requires several relocations. **Table 4-13** summarizes the number of potential hazardous waste impacts, while **Table 4-14** lists specific impacted UST, LUST, and RCRA sites.

The possibility of encountering contamination during excavation activities is considered *High* with potential impacts to three open UST sites, two open LUST sites, one known RCRA generator, and eleven closed UST and LUST sites. There are a total of 17 sites potentially impacted by the Preferred Alternative.

Table 4-13. Summary of Potential Hazardous Waste Impacts

	Open UST Sites	Closed UST Sites	Open LUST Sites	Closed LUST Sites	RCTA SQGs	Total	Hazardous Impact Ranking
Preferred Alternative	3	5	2	6	1	17	High

Table 4-14: Potential Hazardous Waste Impacts

Facility Name	Location	Site Type	Preferred Alternative
7-Eleven 1851-23926	3510 South Redwood Road	Open UST	\
Chevron (formerly Holiday Oil #28)	3189 West 3500 South	Closed LUST	\
Holiday Oil #17	3210 West 3500 South	Open UST	\
Premium Oil Co. (formerly Phillips 66 #35)	3575 West 3500 South	Closed LUST	\
		Open UST	\

Facility Name	Location	Site Type	Preferred Alternative
Oil Rig, Inc.	3480 South Redwood Road	Closed UST	\
Maverick #335 (no longer in business)	3491 South Redwood Road	Closed UST	\
Former Georgia Carpet Outlet	2772 West 3500 South	Closed UST	
Market Street Center	3575 South Constitution Blvd. (2700 W)	Closed UST	
Big O Tire Service Center (formerly Freedom Tire)	2830 West 3500 South	Closed UST	
David Early #8	2850 West 3500 South	Closed UST	
AC Delco (formerly Auto Care Clinic)	3105 West 3500 South	Closed UST	\
Granger-Hunter Improvement District	3146 West 3500 South	Closed UST	
Emissions Express (formerly Gas-N-Go)	3190 West 3500 South	Closed UST	\
Alan's Automotive Service (formerly Fast Eddies)	3257 (3253) West 3500 South	Closed UST	\
7-Eleven 1851-29512 (no longer in business)	3634 West 3500 South	Closed UST	
Premium Oil Co. (formerly Phillips 66 #35)	3575 West 3500 South	Open LUST	\
Maverick #335 (no longer in business)	3491 So. Redwood Road	Closed LUST	\
Kelly Moore Paints	3040 West 3500 South	Closed LUST	\
AC Delco (formerly Auto Care Clinic)	3105 West 3500 South	Closed LUST	\
Granger-Hunter Improvement District	3146 West 3500 South	Closed LUST	
Family Cleaners	2816 West 3500 South	RCRA Generator	
Red Hanger Number 7	3336 West 3500 South	RCRA Generator	
Meineke Discount Mufflers	2190 West 3500 South	Potential RCRA Generator	\
Midas Auto Service Experts	2851 West 3500 South	Potential RCRA Generator	X
Auto Rage	2883 West 3500 South	Potential RCRA Generator	\
Goodyear Tire & Service	2945 West 3500 South	Potential RCRA Generator	\
Affordable Transmissions	3310 West 3500 South	Potential RCRA	

Facility Name	Location	Site Type	Preferred Alternative
American Engine X-Change	3385 West 3500 South	Generator	\

Legend: X = Potential Relocation, \ = Potential Right-of-Way Impact

4.15.4 Mitigation

Until the right-of-way acquisitions are complete, it will not be possible to determine if the sites identified in this report will actually be impacted by construction. Although a site is known or suspected to be contaminated, implementation of the Preferred Alternative does not necessarily mean that construction activities would affect the site. No final assessment as to risk or danger has been presented in this document. Phase I investigations will be conducted later in the design process.

If petroleum contamination or other hazardous materials, including stained and discolored soil, are encountered during construction, mitigation should be coordinated in advance with the UDOT Standard Specification Environmental Protection, which directs the contractor to stop work and notify the project engineer of the possible contamination. Hazardous materials would be disposed of in accordance with the UDEQ Guidelines.

4.16 VISUAL IMPACTS

This section describes the alternatives' potential impacts to visual resources in the study area.

4.16.1 Methods

This visual assessment involved the use of professional judgment and interpretation of comments received as part of the public involvement processes for the DEIS and SES. The visual setting described in Section 3.14 served as a baseline for comparison to future conditions under the No Build and Preferred alternatives. Figures 4-2 through 4-5 represent the No Build (before) and the Preferred (after) Alternatives visual simulations.

Figure 4-2: 3500 South and 3600 West



Figure 4-3: Typical Median Treatment at BRT Station

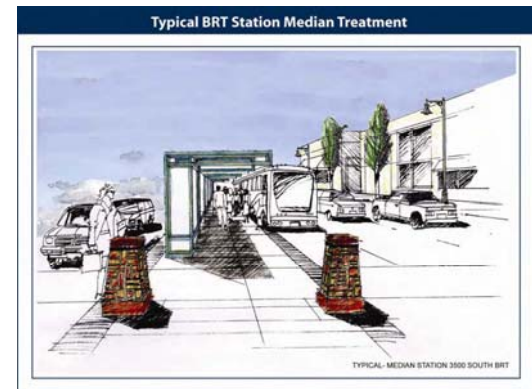


Figure 4-4: 3500 South and 2700 West

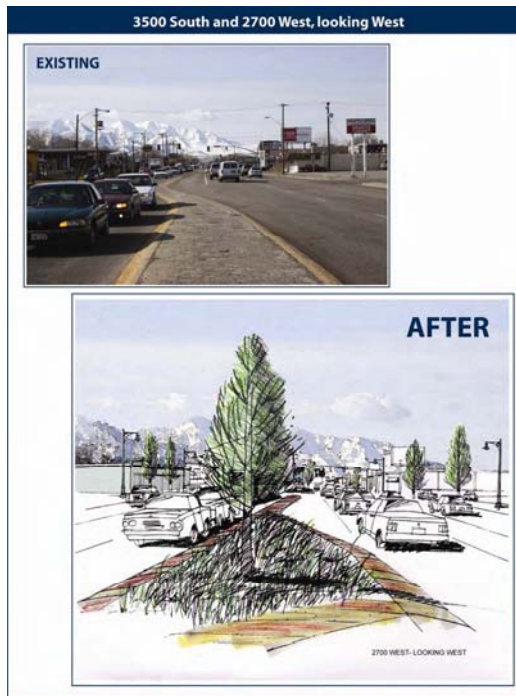


Figure 4-5: View from I-215 looking West



4.16.2 No Build Alternative

The No Build Alternative would not alter the existing visual setting. However, visual changes will occur over time as land use evolves.

4.16.3 Preferred Alternative

Overall, the Preferred Alternative would improve the aesthetic and visual character of the study corridor. It incorporates design features such as center bus lanes, consistent sidewalks, new landscaping, and buried utilities that will enhance driver and pedestrian views. Specific improvements associated with the Preferred Alternative include:

- Landscaping of existing medians that would decrease perceived pavement width.
- Infrastructure for decorative street lighting would be installed by West Valley City. UDOT would replace existing lighting that would be impacted during construction. In other areas, UDOT would make accommodations for the conduit and foundation for decorative lighting so that it can be added later as West Valley City makes street improvements.
- Planting of trees along the north and south sides of 3500 South between 2700 West and Bangerter Highway. Tree wells will be placed between driveways depending on the final access management policy. They will be placed so as not to impair sight distances or block entrances or access to any local businesses. The actual placement and amount of tree plantings will depend on the placement of utilities (above ground or underground) by West Valley City.

Other impacts include:

- Signage removal in some locations will be necessary as a result of widening to accommodate the new roadway footprint.
- The removal of mature trees would greatly affect views from the road west of I-215. Few mature trees exist on the study corridor; however nine would have to be removed near 3600 West on the south side of the street at Granger Park. There would be greater visibility of the background, buildings in the foreground, and middle ground. Height to width ratio in the widened areas would also increase due to both the removal of mature trees and the increased pavement width. (Height to width ratio helps measure how wide the corridor appears based on the height of visual components).

4.16.4 Mitigation

Mitigation for the Preferred Alternative is as follows:

- Previously vegetated areas, on private property, that are disturbed by construction will be financially reimbursed by UDOT and re-vegetated by the property owner.

- All replacement vegetation will be properly planted by UDOT and maintained by West Valley City.
- Where possible, median areas will be landscaped in such a manner as to provide an element that disrupts or breaks up the perceived visual expanse of pavement and reduces the height-to-width ratio.
- Street lighting will be replaced where it is removed or relocated due to construction.

The existing and future visual conditions of the study corridor depend largely on local land use regulations and controls relative to landscaping, signage, building design, parking, etc. These functions rest with local government and are not addressed in this SES.

4.17 RECREATION

This section describes the alternatives' potential impact to the recreational resources in the study area.

4.17.1 No Build Alternative

The No Build Alternative would not impact recreational facilities or recreational uses in the study corridor.

4.17.2 Preferred Alternative

The Preferred Alternative will impact the northern perimeter of Granger Park that abuts 3500 South. The widening of the road in that area would require the removal of nine trees and the acquisition of a small portion of the northern edge of the park, approximately 0.07 to 0.17 acres. However, no structures, playing fields, or facilities would be disturbed.

4.17.3 Mitigation

UDOT will plant new trees to replace the nine that will be removed.

4.18 PERMITS AND CLEARANCES

4.18.1 No Build Alternative

The No Build Alternative would not require any permits.

4.18.2 Preferred Alternative

Implementation of the Preferred Alternative would require several regulatory permits. These permits could include the following:

Section 402 Permit, Utah Pollutant Discharge Elimination System (UPDES) (UDEQ, Division of Water Quality). If construction of the Preferred Alternative would disturb more than one acre, it would require a UPDES construction permit. Obtaining the UPDES permit requires development of a SWPPP that includes a Temporary Erosion and Sedimentation Control Plan (TESCP). The TESCP identifies BMPs as well as site-specific measures to minimize erosion and prevent eroded sediment from leaving the work zone. The SWPPP will address flow, oil and grease monitoring, TSS monitoring, pH, and other water quality monitoring requirements for stormwater discharge, groundwater and construction dewatering, and hydrostatic testing discharge.

Air Quality Approval Order (UDEQ, Division of Air Quality). A permit for air quality impacts during the construction phase is required. The intent of the permit is to control fugitive dust emissions. The contractor would obtain this permit before starting construction. The permit would include requirements for a dust control plan to address emission sources. Other construction approvals could potentially be required, depending upon the sources and locations of aggregate, asphalt, and fuel storage facilities.

Section 106 and Section 110 (National Historic Preservation Act). Section 106 and 110 of the National Preservation Act require that historical and archeological resources be evaluated for eligibility for the National Register of Historic Places (NRHP) and that any eligible resources affected must be preserved or documented. UDOT has consulted with the Utah State Historic Preservation Office (SHPO) regarding project impacts (see **Section 3.14.2**).

Construction-Related Permits and Clearances (Various Agencies). The contractor would be responsible for obtaining all construction-related permits and other environmental clearances for activities occurring outside the right-of-way, such as construction staging areas, borrow areas, and batch plant sites.

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